MarineLab
Marine Resources Development Foundation
Marine Science education in the Florida Keys

Reef Restoration with Citizen Science

Students spend an hour in the classroom discussing the need for reef restoration and various restoration efforts in the Florida Keys (classroom portion is optional). During the field trip, snorkelers will observe one of Coral Restoration Foundation's coral nurseries and then snorkel a restoration site. The citizen science reef restoration program provides students the opportunity to directly participate in local reef restoration efforts. Before leaving the dock, MarineLab instructor will teach the students how to identify outplanted coral and record the necessary data. Students will be taken to one of Mote Marine Lab's coral nurseries for the first site. The students will then collect data on corals that have been outplanted at a second site. Once back at the dock, data will be submitted via CRF's app.

Grade Level: 7th and above

Timing: 2-4 hours**.** Class discussion is 1 hour. Field trip is generally 3 hours but can be compressed to 2 hours. The discussion is not a required component of this program. It is suggested 7th and 8th grade students don't participate in the discussion and solely do the field trip portion.

Concepts Covered:

- Human vs. natural influences on the reef
- boat grounding damage
- Ecological Restoration: passive vs. active
- Physical vs. biological restoration efforts
- Pros and cons of reef restoration techniques used locally and worldwide
- Coral Restoration Foundation
- Coral outplanting procedures
- Underwater data collection
- Citizen science

Vocabulary: prop wash, ecological restoration, active restoration, passive restoration, physical restoration, biological restoration, fragmentation, biorock, ecoreef, reefball, coral nursery, outplanting, corals of opportunity, coral skinning

Resources: www.coralrestoration.org, http://www.reefball.org/, https://www.ecoreefs.com/, https://mote.org/research/program/coral-reef-restoration, http://sanctuaries.noaa.gov/science/conservation/wellwood2.html

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Standards Supported:

Next Generation Sunshine State Standards

SC.912.L.17.8: Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.

SC.912.L.17.18: Describe how human population size and resource use relate to environmental quality.

Ocean Literacy Principles

Principle 6. The ocean and humans are inextricably interconnected.

d. Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution (point source, non-point source, and noise pollution), changes to ocean chemistry (ocean acidification) and physical modifications (changes to beaches, shores and rivers). In addition, humans have removed most of the large vertebrates from the ocean.

g. Everyone is responsible for caring for the ocean. The ocean sustains life on Earth and humans must live in ways that sustain the ocean. Individual and collective actions are needed to effectively manage ocean resources for all.